AMENDMENTS TO THE CLAIMS:

Please amend claims 1-14, 16-20, 22-24, 31-34 and 54-58. Please add claims 61-73. This listing of claims will replace all prior versions, and listings of claims, in the application.

LISTING OF CLAIMS:

1. (Currently Amended) A protein-based composition ~~for preventing or treating infection by a pathogen~~, comprising a compound that comprises:

at least one therapeutic domain comprising a peptide or protein, wherein ~~said~~ the at least one therapeutic domain has at least one extracellular activity that can prevent the infection of a target cell by a pathogen; and

at least one anchoring domain comprising a peptide or protein, wherein ~~said~~ the anchoring domain can bind at or near the surface of ~~a eukaryotic~~ the target cell.

2. (Currently Amended) The composition of claim 1, wherein the target cell is an epithelial cell or endothelial cell and ~~said~~ the anchoring domain can bind at or near the surface of [[an]] the epithelial or endothelial cell.

3. (Currently Amended) The composition of claim 2, wherein the target cell is an epithelial cell and ~~said~~ the anchoring domain can bind at or near the surface of [[an]] the epithelial cell.

4. (Currently Amended) The composition of claim 3, wherein ~~said~~ the anchoring domain binds an epithelial cell surface molecule.

5. (Currently Amended) The composition of claim 4, wherein ~~said~~ the epithelial cell surface molecule is a glycosaminoglycan (GAG).

6. (Currently Amended) The composition of claim 5, wherein ~~said~~ the anchoring domain can bind heparin or heparan sulfate.

7. (Currently Amended) The composition of claim 6, wherein ~~said~~ the anchoring domain is a peptide.

8. (Currently Amended) The composition of claim 7, wherein ~~said~~ the peptide comprises a GAG-binding amino acid sequence of a naturally-occurring protein, or a sequence that is substantially homologous to the GAG-binding sequence of a naturally-occurring protein.

9. (Currently Amended) The composition of claim 8, wherein ~~said~~ the peptide comprises the GAG-binding amino acid sequence of a mammalian protein.

10. (Currently Amended) The composition of claim 9, wherein ~~said~~ the peptide comprises the GAG-binding amino acid sequence of a human protein.

11. (Currently Amended) The composition of claim 10, wherein ~~said~~ the peptide comprises an amino acid sequence substantially homologous to the amino acid sequence [[of]] set forth in SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, or SEQ ID NO:7.

12. (Currently Amended) The composition of claim 11, wherein ~~said~~ the amino acid sequence comprises the GAG-binding amino acid sequence of human platelet factor 4 (SEQ ID NO:2), human interleukin 8 (SEQ ID NO:3), human antithrombin III (SEQ ID NO:4), human apoprotein E (SEQ ID NO:5), human angio-associated migratory protein (SEQ ID NO:6), or human amphiregulin (SEQ ID NO:7).

13. (Currently Amended) The composition of claim 1, wherein ~~said~~ the pathogen is a virus.

14. (Currently Amended) The composition of claim 13, wherein ~~said~~ the virus is an influenza virus.

15. (Canceled)

16. (Currently Amended) The composition of claim 13, wherein ~~said~~ the at least one therapeutic domain comprises a protease inhibitor.

17. (Currently Amended) The composition of claim 16, wherein ~~said~~ the protease inhibitor inhibits an enzyme involved in processing a viral protein.

18. (Currently Amended) The composition of claim 17, wherein ~~said~~ the enzyme involved in processing a viral protein is a host enzyme.

19. (Currently Amended) The composition of claim 18, wherein ~~said~~ the protease inhibitor is a serine protease inhibitor.

20. (Currently Amended) The composition of claim 19, wherein ~~said~~ the serine protease inhibitor is aprotinin, leupeptin, soybean protease inhibitor, e-aminocaproic acid, or n-p-tosyl-L-lysine.

21. (Canceled)

22. (Currently Amended) The composition of claim 1, wherein ~~said~~ the therapeutic domain is an enzyme or an active portion thereof.

23. (Currently Amended) The composition of claim 22, wherein ~~said~~ the therapeutic domain is a sialidase.

24. (Currently Amended) The composition of claim 20, wherein ~~said~~ the sialidase is substantially homologous to at least a portion of at least one viral sialidase, at least one bacterial sialidase, or at least one eukaryotic sialidase, wherein the portion of the at least one viral sialidase, at least one bacterial sialidase or at least one eukaryotic sialidase comprises essentially the same activity as the corresponding viral sialidase, bacterial sialidase or eukaryotic sialidase.

25-30. (Canceled)

31. (Currently Amended) The composition of claim 24, wherein ~~said~~ the sialidase is substantially homologous to at least a portion of at least one eukaryotic sialidase, wherein the portion of the at least one eukaryotic sialidase comprises essentially the same activity as the eukaryotic sialidase .

32. (Currently Amended) The composition of claim 31, wherein ~~said~~ the sialidase is substantially homologous to at least a portion of at least one human sialidase, wherein the portion of the at least one human sialidase comprises essentially the same activity as the human sialidase.

33. (Currently Amended) The composition of claim 32, wherein ~~said~~ the human sialidase is substantially homologous to ~~at least a portion of~~ the NEU1, NEU3, NEU2, or NEU4 genes.

34. (Currently Amended) The composition of claim 33, wherein ~~said~~ the sialidase is substantially homologous to the NEU2 or NEU4 genes and comprises a sequence of amino acids that is substantially homologous to the sequence of amino acids set forth in SEQ ID NO:8 or SEQ ID NO:9 ~~at least a portion of NEU2 (SEQ ID NO:8), or NEU4 (SEQ ID NO:9)~~.

35-46. (Canceled)

47. (Original) A pharmaceutical formulation comprising the composition of claim 1.

48-49. (Canceled)

50. (Original) A method of treating or preventing influenza infection, comprising: applying a therapeutically effective amount of the composition of claim 1 to epithelial cells of a subject.

51-53. (Canceled)

54. (Currently Amended) A method of using a sialidase to prevent or impede infection by a pathogen, comprising:

providing a composition that comprises at least one sialidase; and

applying a therapeutically effective amount of ~~said~~ the composition to epithelial cells of a subject.

55. (Currently Amended) The method of claim 54, wherein ~~said~~ the sialidase is substantially homologous to at least a portion of at least one viral sialidase, at least one bacterial sialidase, or at least one eukaryotic sialidase, wherein the portion of the at least one viral sialidase, at least one bacterial sialidase or at least one eukaryotic sialidase comprises essentially the same activity as the corresponding viral sialidase, bacterial sialidase or eukaryotic sialidase.

56. (Currently Amended) The ~~composition~~ method of claim 55, wherein ~~said~~ the sialidase is substantially homologous to at least a portion of at least one eukaryotic sialidase, wherein the portion of the at least one eukaryotic sialidase comprises essentially the same activity as the eukaryotic sialidase.

57. (Currently Amended) The ~~composition~~ method of claim 56, wherein ~~said~~ the subject is a human subject[[,]] and ~~said~~ the sialidase is substantially homologous to at least a portion of at least one human sialidase, wherein the portion of the at least one human sialidase comprises essentially the same activity as the human sialidase.

58. (Currently Amended) The ~~composition~~ method of claim 57, wherein ~~said~~ the sialidase is substantially homologous to the NEU2 or NEU4 genes and comprises a sequence of amino acids that is substantially homologous to the sequence of amino acids set forth in SEQ ID NO:8 or SEQ ID NO:9 ~~at least a portion of NEU2 (SEQ ID NO:8), or NEU4 (SEQ ID NO:9)~~.

59-60. (Canceled)

61. (New) The composition of claim 24, wherein the sialidase is substantially homologous to at least a portion of at least one bacterial sialidase, wherein the portion of the at least one bacterial sialidase comprises essentially the same activity as the bacterial sialidase.

62. (New) The composition of claim 61, wherein the at least one bacterial sialidase is selected from the group consisting of *Vibrio cholerae* sialidase, *Clostridium perfringens* sialidase, *Actinomyces viscosus* sialidase and *Micromonospora viridifaciens* sialidase.

63. (New) The composition of claim 61, wherein the at least one bacterial sialidase is one bacterial sialidase.

64. (New) The composition of claim 63, wherein the bacterial sialidase is *Actinomyces viscosus* sialidase.

65. (New) The composition of claim 1, further comprising at least one peptide linker that links the at least one anchoring domain to the at least one therapeutic domain.

66. (New) The composition of claim 65, wherein the at least one peptide linker comprises at least one glycine residue.

67. (New) The composition of claim 65, wherein the at least one peptide linker comprises the sequence (GGGGS)*n*, where *n* is a whole number from 1 to 20.

68. (New) The composition of claim 1, wherein the at least one anchoring domain is N-terminal to the at least one therapeutic domain.

69. (New) The composition of claim 1, wherein the at least one anchoring domain is C-terminal to the at least one therapeutic domain.

70. (New) The composition of claim 1, wherein the at least one anchoring domain is at least two anchoring domains.

71. (New) The composition of claim 70, wherein at least one of the at least two anchoring domains is N-terminal to the at least one therapeutic domain and at least one of the at least two anchoring domains is C-terminal to the at least one therapeutic domain.

72. (New) The pharmaceutical formulation of claim 47 that is formulated as a spray.

73. (New) The pharmaceutical formulation of claim 47 that is formulated as an inhalant.